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UNITED STATES
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J. A. KRUG, SECRETARY

BUREAU OF MINES
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BY

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DIAMOND-DRILL-CORE STORAGE AT MOUNT WEATHER TESTING ADIT[1]

By James E. Hill[2]

INTRODUCTION

The Bureau of Mines has been carrying on an extensive diamond-drilling program during the past 7 years on deposits of strategic and critical minerals. Often the project reports and the drill-hole logs describe the findings only in terms of the mineral being sought at the time. Then, too, results may not always be interpreted alike by several mining engineers, and the cores therefore provide a permanent tangible record to complement the project reports.

The cores from projects in the eastern divisions are being stored at the Mount Weather Testing Adit. Core from a representative hole (or skeletonized sections from several holes, if these are more representative) is selected at each project and shipped to Mount Weather for permanent storage.

At the Testing Adit an underground room was prepared and storage racks were installed. Wooden core trays designed to accommodate cores of various sizes were purchased.

ACKNOWLEDGMENTS

The work was done under the direct supervision of Wing G. Agnew, rock mine superintendent, Mount Weather Field Station, and the general supervision of Lowell B. Moon, chief, Mining Branch, Bureau of Mines. Diamond-drill cores were prepared and shipped by the various project engineers under the supervision of McHenry Mosier, chief, College Park Division, and Mitchell H. Kline, chief, Raleigh Division.

Photographs were taken by Myron H. Ritter, College Park Division.

CORE-STORAGE ROOM

The core-storage room is in R2-1, an unused drift in the test adit. The room was formed by slabbing an equal distance on each side of the center line of the drift to a full width of 16 feet for a distance of approximately 100 feet (figs. 1 and 2). A track extends the length of the room along the center line of the drift and dead-ends near the drift face. A wooden bench will be constructed at the end of the drift, and lights will be installed for examining the core. Core trays can thus be placed on a mine car from any point in the storage racks and moved to the end of the drift, where the core can be inspected. (See figs. 4-7.)

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[1] The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: "Reprinted from Bureau of Mines Information Circular 7394."

[2] Mining engineer, Mining Branch, Bureau of Mines, Mount Weather Field Station, Bluemont, Va.

STORAGE RACKS

Storage racks are built in sections, each 56 inches deep, 6 feet long, and 6 feet high (fig. 2). The first section has four upright 4- by 4-inch posts placed on 2-inch blocks and wedged to the roof. Crosspieces consisting of 2- by 6-inch boards 56 inches long are nailed to the posts at each end. A $1\frac{1}{4}$-inch notch is cut in these crosspieces at the center and 4 inches from each end to retain the 1-inch galvanized pipe used to support the core trays. Twelve crosspieces are laid one above another to form 12 shelves in each section. The 1-inch pipe in 21-foot lengths serves to tie the sections together. Successive sections are built by adding 2 more upright posts and 12 crosspieces, and additional pipe is coupled as needed.

All wooden members in the racks were dipped in water-repellent preservatives. Three preservatives were used for experimental purposes, and the members in storage-rack sections were dipped in the same preservatives that was used on the trays stored in those sections.

CORE TRAYS

Permanent storage trays were designed so that any size core in the range EX, AX, BX, or NX, could be placed in the trays with very little lost space. The trays have inside dimensions of 1-1/2 inches by 15 inches by 5 feet and are constructed from 3/4-inch lumber. The bottom is made of two pieces, each 7-1/2 inches wide by 61-1/2 inches long. End pieces are nailed inside the side pieces for greater strength (fig. 8). The end pieces are 2-1/4 by 15 inches and the side pieces 2-1/4 by 61-1/2 inches.

Divider strips are 3/4 inches high, 1/2 inch wide, and 5 feet long. The strips are nailed in the tray as the core is placed therein. Each tray is thus tailor-made to fit the core placed in it, and any changes in size of core may be handled by spacing the strips as the core is placed in the tray. The core trays will hold 55 feet of EX core, 45 feet of AX core, 35 feet of BX core, or 30 feet of NX core.

WOOD-TREATING OF CORE TRAYS

The core trays used for permanent storage are treated with wood preservative. The first 300 trays were dipped by batches of 100 in three wood preservatives of different manufacture. The most effective of these preservatives will be used to treat core trays used hereafter.

A galvanized iron tank was constructed large enough to dip 10 trays at one time. The trays remain in the solution for 30 minutes and are then hung on racks to drip dry. Racks and tank were so arranged that solution dripping from the trays returns to the tank. Divider strips and markers also were dipped in the solution.

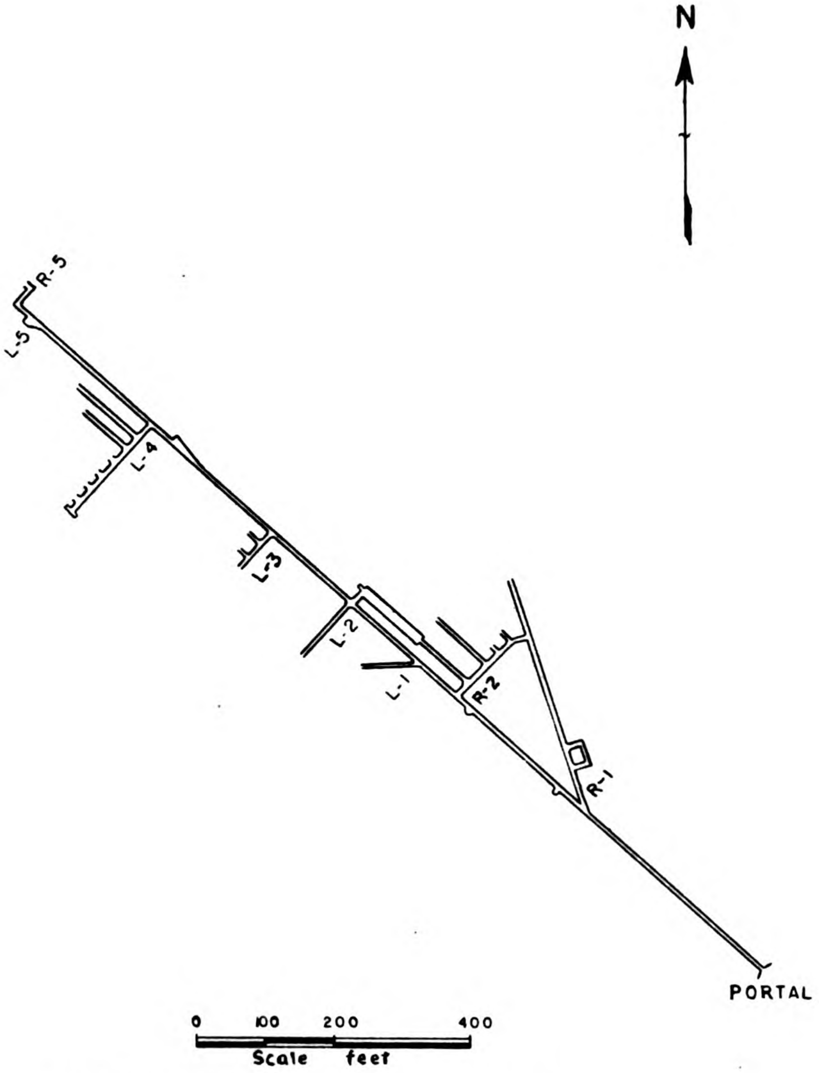


Figure 1.- Mount Weather testing adit.

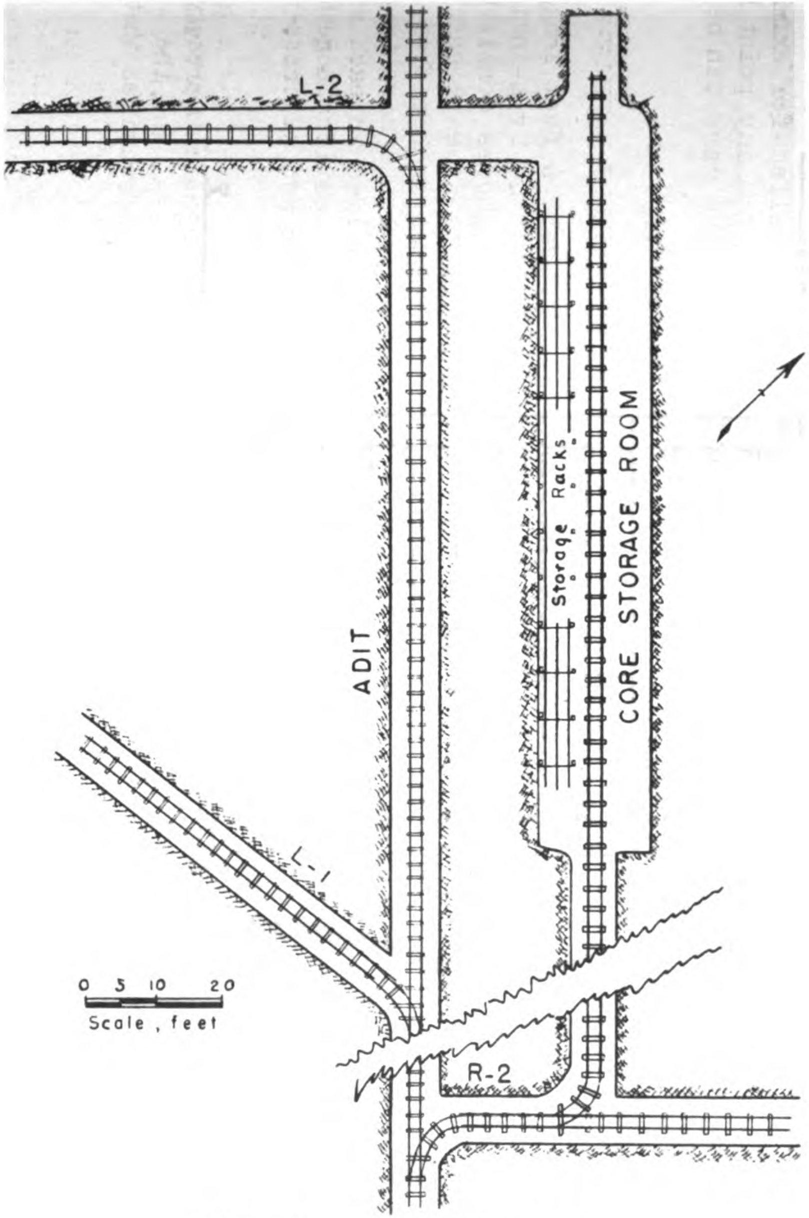
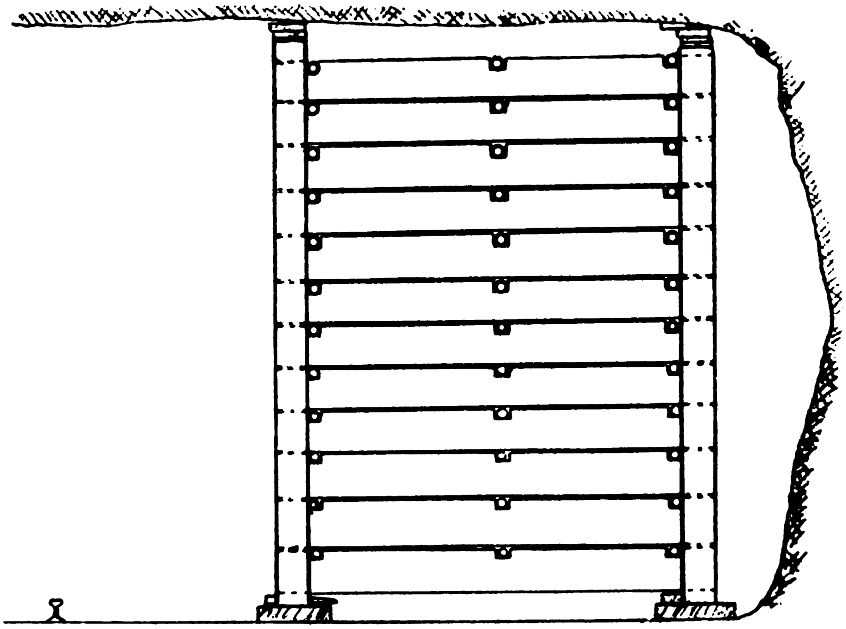
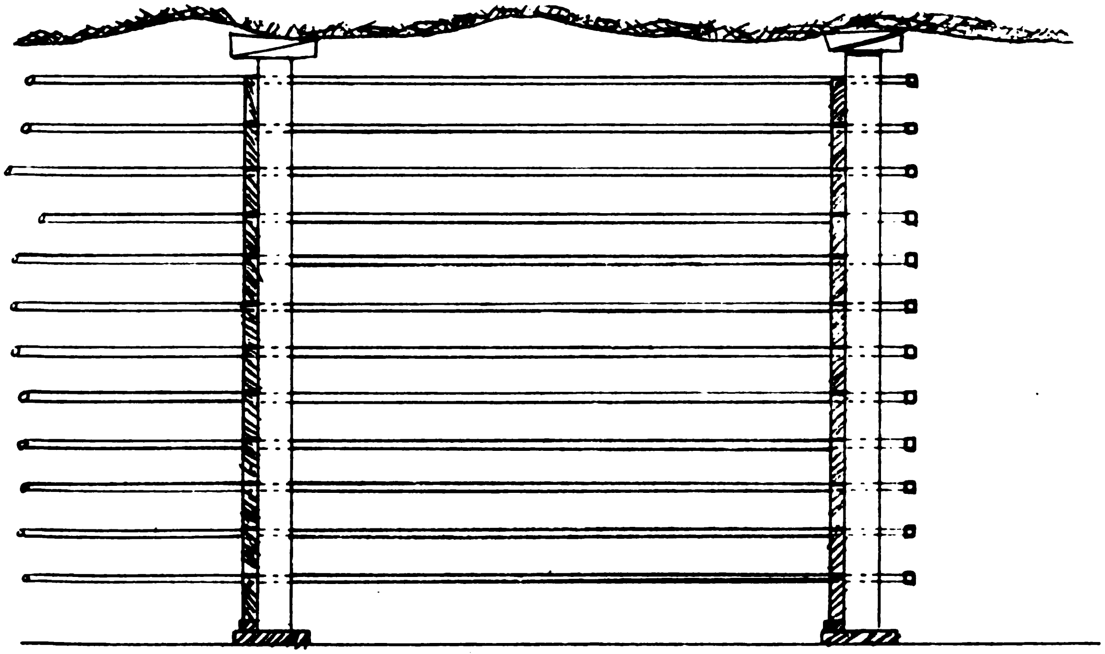


Figure 2.- Core-storage room.



Side View



Front View

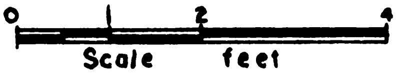


Figure 3.- Core-storage racks.

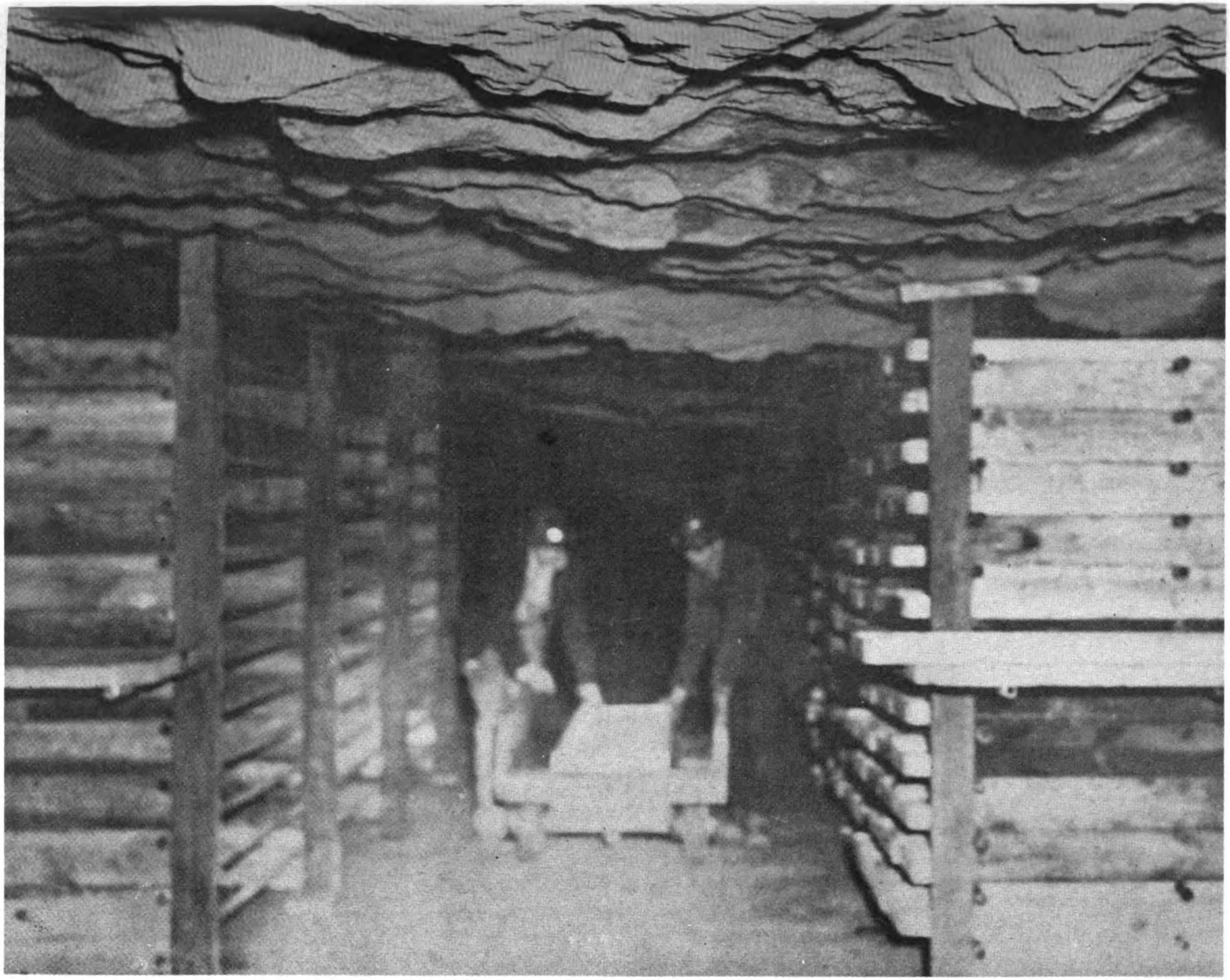


Figure 4.- Transporting core trays to underground storage room.

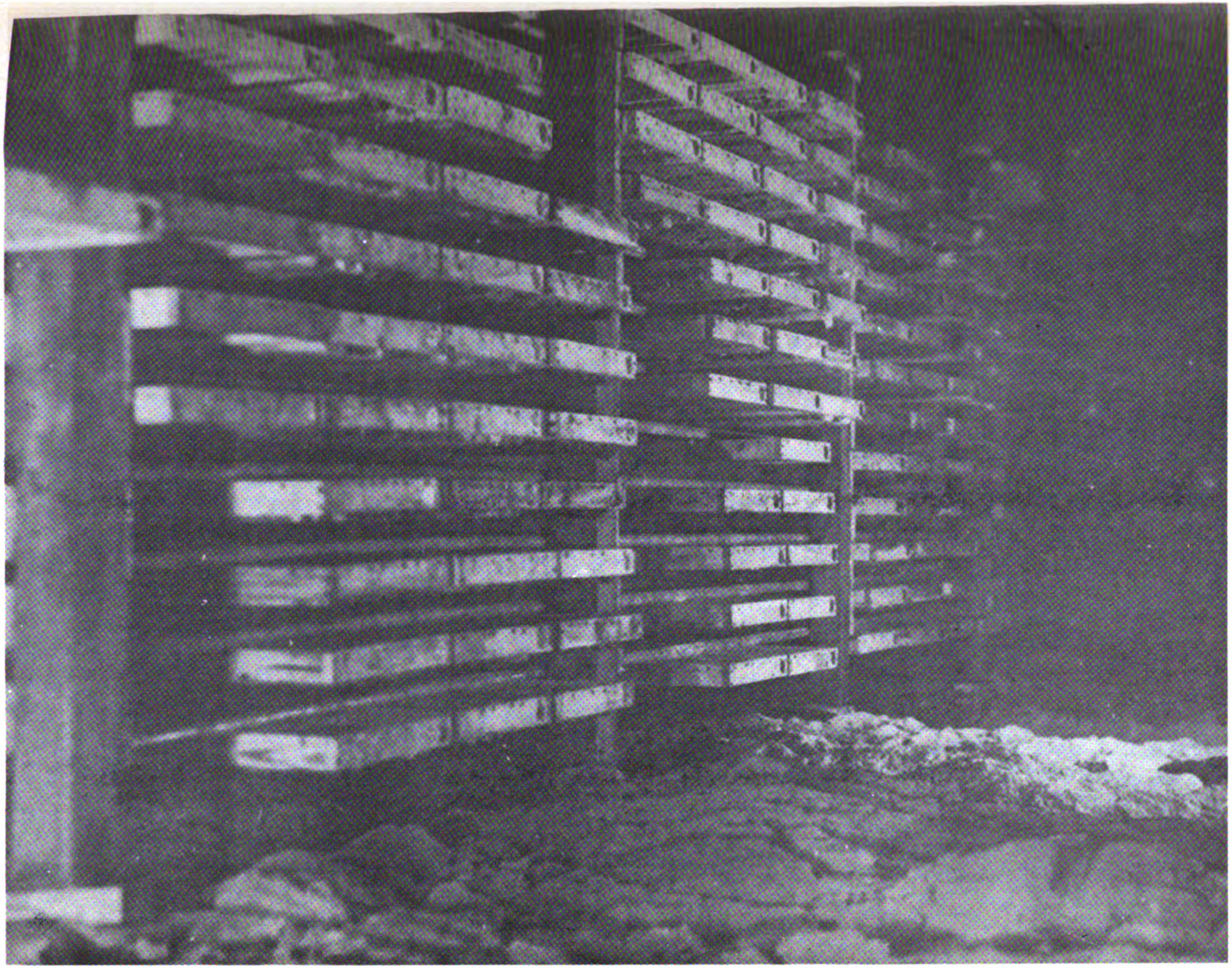


Figure 5.- Core trays in racks.

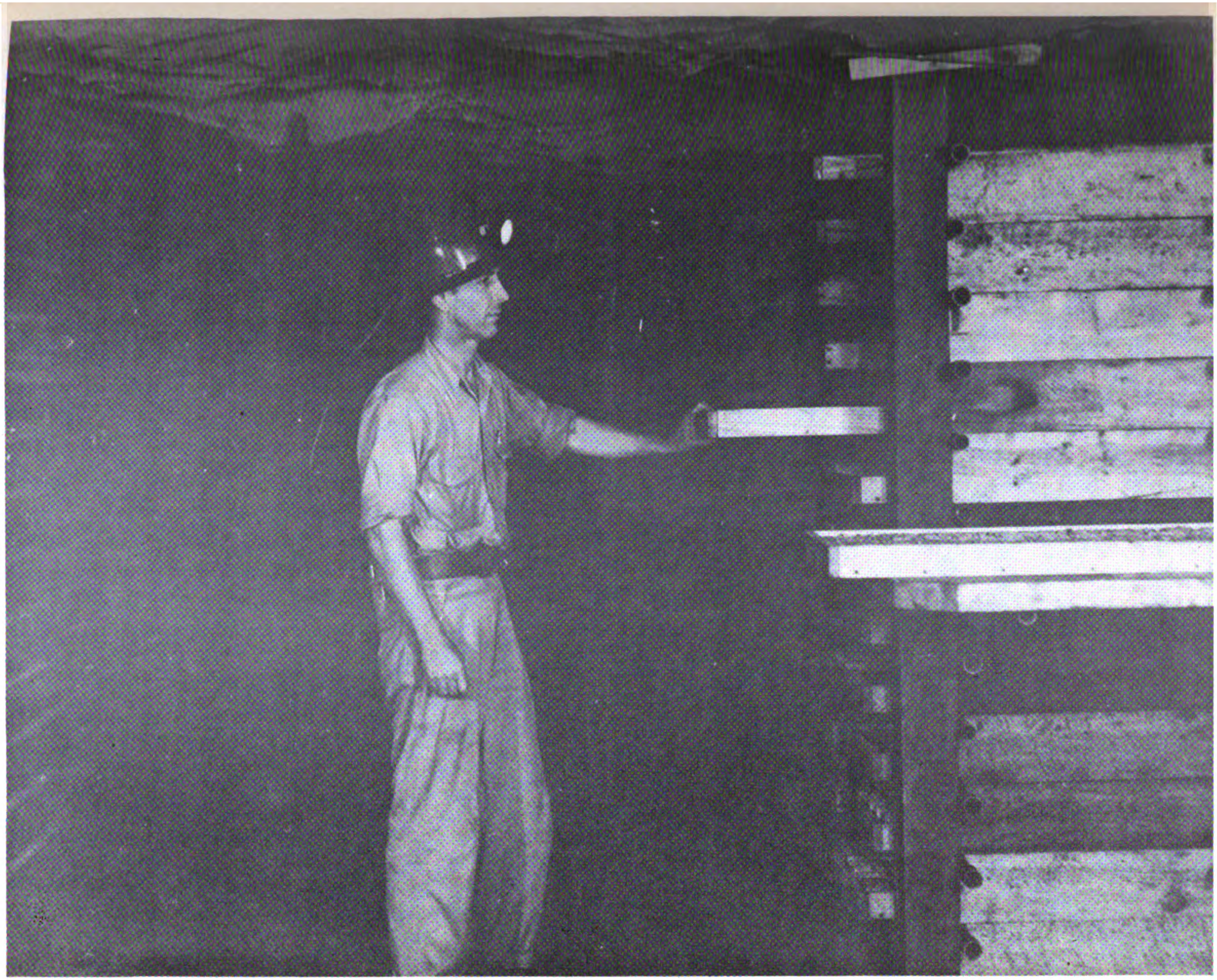


Figure 6.- Removing core tray from underground storage rack.

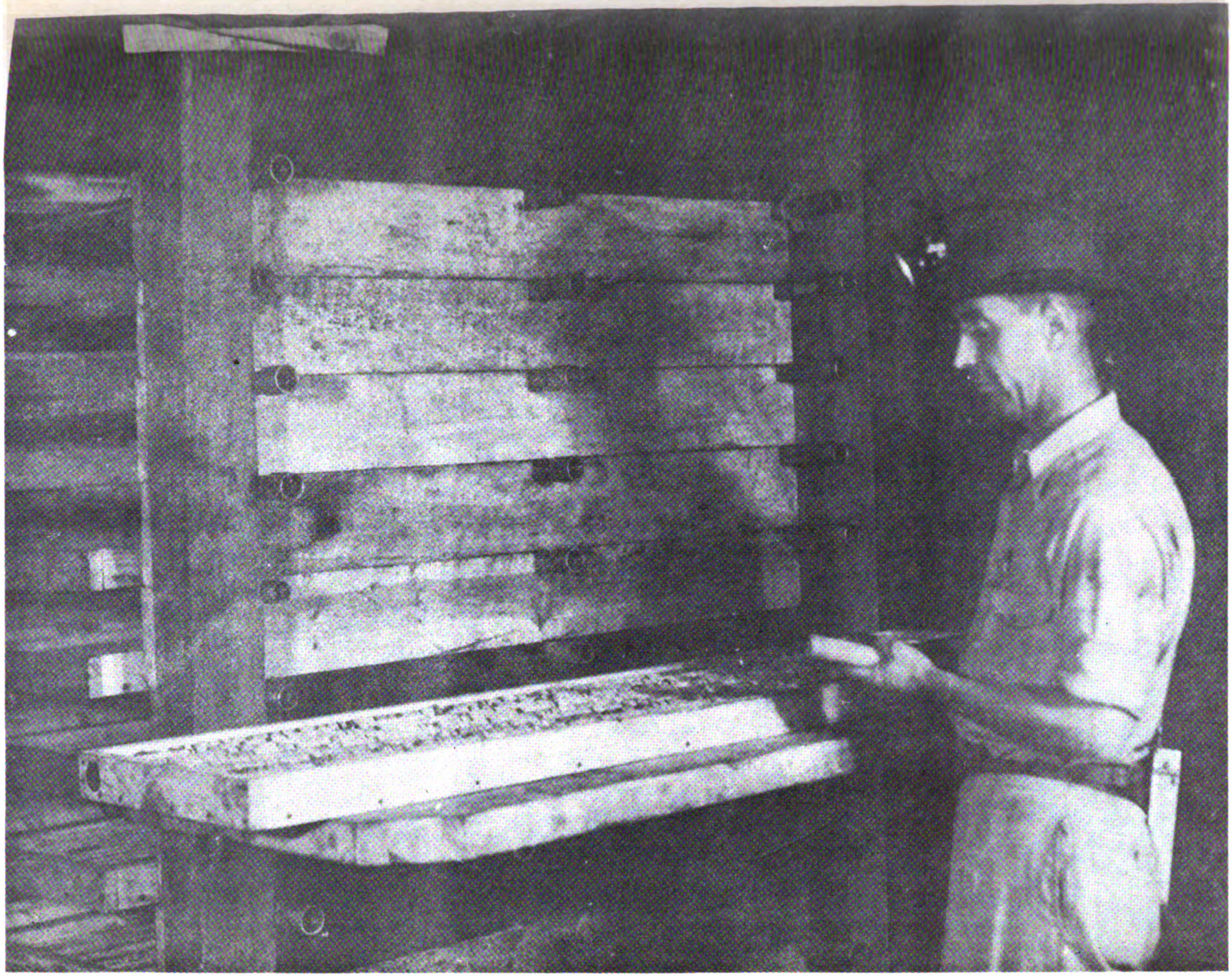


Figure 7.- Examining tray of cores in underground storage room.

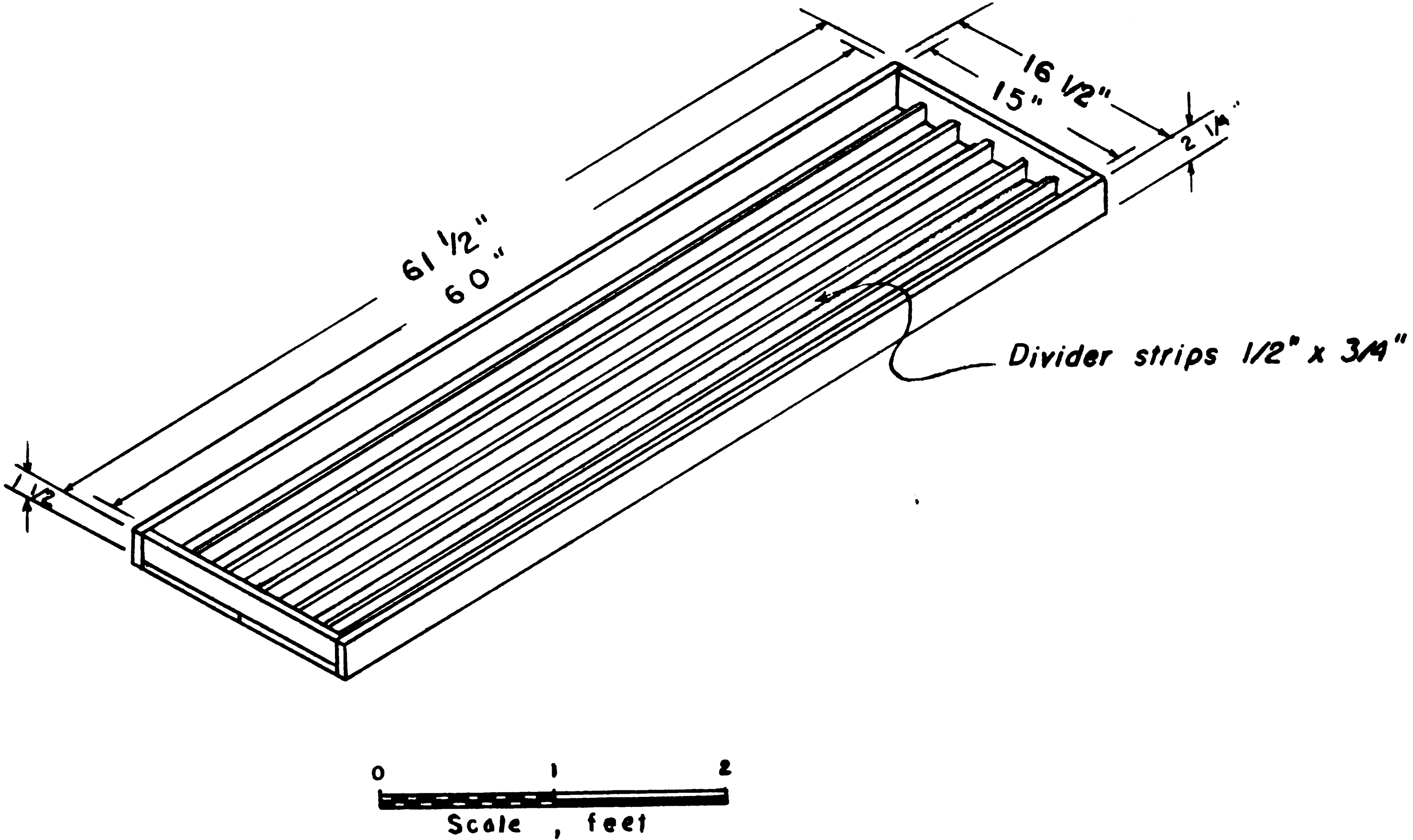


Figure 8.- Permanent storage trays for diamond-drill cores.

RECORDS

Each permanent core tray is identified by a numbered brass tag screwed to the end of the box. The core-tray numbers are entered consecutively in a record book together with the project number, name, location of project, number of the hole, and the footage interval of core contained in the tray. This is supplemented by an index of projects showing hole number and tray numbers for that project.

A complete report is on file for each project represented by diamond-drill cores stored at Mount Weather. The diamond drill cores in permanent storage were selected, as nearly as possible, to be representative of conditions and formations encountered by drilling at each location.

SUMMARY AND CONCLUSIONS

At present, diamond-drill cores from 23 projects in 11 States are stored at Mount Weather. As additional projects are completed, representative cores are shipped to Mount Weather to be added to this permanent record of core drilling in the eastern United States.